

CLAIMS

1. An optical fiber preform assembly, comprising:
5 a preform core rod;
at least one overclad tube formed around the preform core rod to form an overclad optical fiber preform, the overclad tube having a first end;
a handle attached to the first end of the overclad tube; and
a refractory material positioned between the preform core rod and the handle,
10 wherein the refractory material is positioned to reduce movement of the preform core rod into the handle.
2. The assembly as recited in claim 1, wherein the refractory material has a
melting temperature sufficiently greater than that of the preform core rod and the overclad
15 tube to prevent flow of the refractory material into the handle when the optical fiber preform assembly is heated.
3. The assembly as recited in claim 1, wherein the refractory material is made of
at least one of the materials selected from the group consisting of magnesium oxide
20 (MgO), aluminum oxide (Al₂O₃), spinel (MgO-Al₂O₃), mullite (Al₂O₃-SiO₂), yttrium oxide (Y₂O₃), zirconium oxide (ZrO₂), calcium oxide (CaO), silicon nitride (Si₃N₄), silicon carbide (SiC), titanium carbide (TiC) and boron nitride (BN).
4. The assembly as recited in claim 1, wherein the refractory material has a
25 melting temperature greater than approximately 2000 degrees Celsius.
5. The assembly as recited in claim 1, wherein the refractory material further
comprises a refractory material disc positioned between the preform core rod and the
handle.

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6. The assembly as recited in claim 1, wherein the refractory material further comprises a refractory material tube positioned between the preform core rod and the handle.

5 7. The assembly as recited in claim 1, wherein the refractory material is isolated from the preform core rod.

8. The assembly as recited in claim 1, wherein the assembly further comprises a silica disc positioned between the preform core rod and the refractory material, wherein
10 the silica disc isolates the preform core rod from the refractory material.

9. The assembly as recited in claim 1, wherein the handle is made of silica.

10. A method for making optical fiber, the method comprising the steps of:
15 providing a preform core rod having a core region surrounded by a cladding region;
 providing at least one overclad tube having a handle attached to a first end of the overclad tube;
 positioning a refractory material in the first end of the overclad tube;
20 positioning the preform core rod in the overclad tube, wherein the refractory material is positioned between the preform core rod and the handle, wherein the refractory material reduces movement of the preform core rod into the handle; and
 drawing fiber from the overclad optical fiber preform.

25 11. The method as recited in claim 10, wherein the refractory material positioning step further comprises positioning a refractory material with a melting temperature sufficiently greater than that of the preform core rod to prevent flow of the refractory material into the handle when the optical fiber preform assembly is heated.

12. The method as recited in claim 10, wherein the refractory material positioning step further comprises positioning a refractory material that is made of at least one of the materials selected from the group consisting of magnesium oxide (MgO), aluminum oxide (Al₂O₃), spinel (MgO-Al₂O₃), mullite (Al₂O₃-SiO₂), yttrium oxide (Y₂O₃),
5 zirconium oxide (ZrO₂), calcium oxide (CaO), silicon nitride (Si₃N₄), silicon carbide (SiC), titanium carbide (TiC) and boron nitride (BN).

13. The method as recited in claim 10, wherein the refractory material positioning step further comprises positioning a refractory material whose melting temperature is
10 greater than approximately 2000 degrees Celsius.

14. The method as recited in claim 10, wherein the refractory material positioning step further comprises positioning a refractory material disc in the first end of the overclad tube.

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15. The method as recited in claim 10, wherein the refractory material positioning step further comprises positioning a refractory material tube in the first end of the overclad tube.

20 16. The method as recited in claim 10, further comprising the step of isolating the preform core rod from the refractory material.

17. The method as recited in claim 10, further comprising the step of positioning a silica disc between the preform core rod and the refractory material to isolate the
25 preform core rod from the refractory material.

18. The method as recited in claim 10, wherein the attaching step further comprises attaching a handle made of silica to the first end of the overclad tube.